

PATENT  
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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: )  
Frederic SGIER et al. ) Group Art Unit: 3733  
Application No.: 10/766,911 ) Examiner: Shaffer, Richard R.  
Filed: January 30, 2004 ) Confirmation No.: 4613  
For: VERTEBRAL ARTHRODESIS )  
DEVICE )

**Mail Stop RCE**  
Commissioner for Patents  
Washington, DC 20231

Sir:

**AMENDMENT**

In reply to the Office Action dated July 7, 2006, the period for reply has been extended to January 7, 2007 by a request for extension of time (3 months) and fee payment filed concurrently herewith. Further, a Request for Continued Examination and fee payment are filed concurrently herewith. Please amend the application as follows:

**Amendments to the Claims** are reflected in the listing of claims in this paper.

**Remarks** follow the amendment section of this paper.

**One Attachment** including a certified English translation of French Patent No.

2 801 492.

**AMENDMENTS TO THE CLAIMS:**

This listing of claims will replace all prior versions and listings of claims in the application:

1. (Currently Amended) A vertebral arthrodesis device comprising:  
at least one pin designed to be positioned along vertebrae that are to be immobilized; and  
~~at least one screwparts for anchoring thesaid pin to the vertebrae, each screw, including:anchoring part presenting a head that delimits a cavity for receiving the pin; and that receives tightening means of the pin in said cavity, the assembly allowing the possibility of clearing the pin with relation to the anchoring part before the tightening of said tightening means, and the possibility of immobilizing said head with relation to said anchoring part in a given position, when said tightening is performed;~~  
The device characterized in that:  
~~at least one ring having a substantially~~The device comprises rings in a spherical outer surface and form in a number equal to that of the anchoring parts, each ring presenting an inside diameter allowing sliding engagement on the pin ~~and~~ and a plurality of slots distributed on its periphery, said slots extending between an outer surface of the ring and said inside diameter and opening alternatively at one of a plurality of longitudinal openings of said inside diameter;  
~~wherein the~~ The head of each ~~screw~~ anchoring part is shaped so that ~~the~~ said cavity that the head delimits may receive ~~the~~ at least one ring ~~one~~ of the said rings with snap-on installation, and presents at least two lateral threaded holes opening from its proximal surface; and

~~Each anchoring part comprises a clamping ring shaped for positioning on said head by overlapping said ring, said clamping ring comprising lateral holes appropriate for coinciding with the threaded holes of the head and for receiving the tightening screws that can be screwed in these threaded holes, said clamping ring furthermore presenting a cone-shaped central aperture allowing the clamping ring to come into contact with the ring in the course of tightening said screws, so that said clamping ring tightens said ring between itself and said head.~~

2. (Currently Amended) The device according to claim 1, wherein characterized in that the head of each screw anchoring part comprises at least one slot opening in the bottom of the said cavity, giving the cavity a slight flexibility in a direction perpendicular to that according to which the said cavity opens on the outside of the head.
3. (Currently Amended) The device according to claim 2, wherein characterized in that the head of each screw anchoring part comprises two lateral slot openings slots opening in the bottom of the said cavity.
4. (Currently Amended) The device according to claim 3, wherein characterized in that each lateral slot opening is inclined toward in the direction of the other slot opening so that these slots converge in the direction of the bottom of the cavity.
5. (Currently Amended) The device according to claim 1, wherein characterized in that the cavity of each screw anchoring part is delimited by a wall in the form of a

hollow sphere segment having presenting a diameter slightly less than the outer diameter that of each ring.

6. (Currently Amended) The device according to claim 5, wherein characterized in that the cavity of each screw anchoring part is bordered by two lateral undercuts in the form of a segment of a hollow sphere, allowing, in a snap-on installation position of the ring, clearance of the pin with relation to the corresponding anchoring part.

7. (Currently Amended) The device according to claim 1, wherein characterized in that the head of each screw anchoring part presents an enlarged form extending in a direction perpendicular to the direction according to which the cavity opens on the outside of the head, so that the form delimits includes two thick lateral walls, in the proximal surfaces of which said, each lateral wall including at least one threaded hole holes are provided.

8. (New) The device of claim 1, wherein the at least one ring includes a plurality of slots distributed on its periphery.

9. (New) The device of claim 8, wherein the slots of the at least one ring extend between the outer surface of the ring and the inside diameter of the ring.

10. (New) The device of claim 9, wherein each of the slots of the at least one ring open at one of the longitudinal openings, and each adjacent slot opens at the opposite longitudinal opening.

11. (New) The device of claim 1, wherein the head further includes:  
at least two lateral threaded holes;  
a clamping ring shaped for positioning on the head by overlapping the at least one ring and having at least two holes configured to align with the at least two lateral threaded holes of the head when the clamping ring is positioned on the head; and  
at least two threaded tightening members for securing the clamping ring to the head by passing the tightening members through the at least two holes of the clamping ring and into the threaded holes of the head.

12. (New) A vertebral arthrodesis device, comprising:  
at least one pin configured to be positioned along two or more vertebrae;  
at least one ring having a through hole for receiving the at least one pin, wherein the through hole includes two longitudinal openings disposed on opposite sides of the at least one ring, the at least one ring having an inside diameter configured to allow sliding engagement with the at least one pin and an outer surface having a substantially spherical shape; and  
at least two screws, each screw including:  
a head that includes a cavity for receiving one of the at least one rings in sliding engagement with the pin, wherein the cavity includes an inner surface having a

partially spherical contour configured to engage the outer surface of the at least one rings.

13. (New) The device according to claim 12, wherein the head of each screw comprises at least one slot opening in the bottom of the cavity, giving the cavity a slight flexibility in a direction perpendicular to that according to which the cavity opens on the outside of the head.

14. (New) The device according to claim 13, wherein the head of each screw comprises two lateral slot openings in the bottom of the cavity.

15. (New) The device according to claim 14, wherein each lateral slot opening of the head of the screw is inclined towards the other slot opening.

16. (New) The device according to claim 12, wherein the cavity of each screw is delimited by a wall in the form of a hollow sphere segment having a diameter slightly less than an outer diameter of each ring.

17. (New) The device according to claim 16, wherein the cavity of each screw is bordered by two lateral undercuts in the form of a segment of a hollow sphere.

18. (New) The device according to claim 12, wherein the head of each screw includes two lateral walls, each lateral wall including at least one threaded hole.

19. (New) The device of claim 12, wherein the at least one ring includes a plurality of slots distributed on its periphery.

20. (New) The device of claim 19, wherein the slots of the at least one ring extend between the outer surface of the ring and the inside diameter of the ring.

21. (New) The device of claim 20, wherein each of the slots of the at least one ring open at one of the longitudinal openings, and each adjacent slot opens at the opposite longitudinal opening.

22. (New) The device of claim 12, wherein the head further includes:  
at least two lateral threaded holes;  
a clamping ring shaped for positioning on the head by overlapping the at least one ring and having at least two holes configured to align with the at least two lateral threaded holes of the head when the clamping ring is positioned on the head; and  
at least two threaded tightening members for securing the clamping ring to the head by passing the tightening members through the at least two holes of the clamping ring and into the threaded holes of the head.

## REMARKS

Claims 1-7 were pending in the application. Claims 1-7 are currently amended. New claims 8-22 have been added. Applicants request examination of claims 1-22, including independent claims 1 and 12, and dependent claims 2-11 and 13-22.

### §103 Rejection

Claims 1-7 remain rejected under 35 U.S.C. §103(a) as being unpatentable over Jacques (French Patent No. 2 801 492) in view of Vignaud et al. (U.S. Patent No. 5,176,680) and further in view of Schlapfer et al. (U.S. Patent No. 5,501,684).

The Examiner alleges that Jacques discloses each of the elements of the previously present claims except that Jacques does not disclose lateral undercuts, a ring placed along the pin, and a cavity capable of securing the pin with a ring about it. The Examiner states that Vignaud discloses a similar device including a split ring (9), clamping means (7, 8, and 18) and lateral undercuts. The Examiner states that it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device of Jacques with the split ring and lateral undercuts.

Applicants traverse the rejection of claims 1-7 as being unpatentable over Jacques in view of Vignaud and further in view of Schlaper. "The proposed modification cannot render the prior art unsatisfactory for its intended purpose." MPEP §2143.01 V. In this case, the combination of Jacques and Vignaud would not provide a satisfactory device because the device of Jacques could not suitably secure the ring of Vignaud. Jacques discloses two projecting sides (10) that can be clamped onto a rod by bringing the sides closer together with a bracket (7). Further, the ring of Vignaud cannot be

combined with the side walls of Jacques because the side walls of Jacques, although suitable for securing a rod, would not be suitable for securing a ring. For example, the side walls of Jacques form a channel (11) (see page 4, translation of Jacques), whereas the screw of Applicants' disclosure provides a cavity that engages the ring in a "snap-on" configuration (claim 1) or having a "partially spherical inner surface configured to engage the outer surface of the at least one rings" (claim 13). Neither reference discloses, teaches, or suggests these claimed features.

In addition, the Office Action states that Schlapfer teaches a sliding ring having longitudinal cuts. Applicants believe that the ring of Schlapfer, like the ring of Vignaud, could not be used with the device of Jacques for the reasons cited above.

In view of the foregoing amendments and remarks, Applicants respectfully request the reconsideration and reexamination of this application and the timely allowance of the pending claims.

Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 06-0916.

Respectfully submitted,

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Dated: January 5, 2007

By:   
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Reg. No. 58,063